

Claims

1. Directional coupler having

a first connection (5) to input or output a wave and a first decoupling connection (6) to decouple a coupled wave which are both connected via a first network (7) to the inner conductor (2) and the outer conductor (3) of a coaxial line (1) at the first connection face (8) thereof, and

a second connection (10) to input or output the input or output wave from the first connection (5) and a second decoupling connection (11) to decouple a coupled wave which are both connected via a second network (12) to the inner conductor (2) and to the outer conductor (3) of the coaxial line (1) at the second connection face (9) thereof,

the coaxial line (1) being bent in such a manner that its first and second connection face (8, 9) is essentially aligned parallel to a planar printed circuit board (15) which comprises the first connection (5), the second connection (10), the first decoupling connection (6) and/or second decoupling connection (11).

2. Directional coupler according to claim 1,

characterised in that

the first network (7) and the second network (12) is respectively a resistance network.

3. Directional coupler according to claim 1 or 2,

characterised in that

the outer conductor (3) of the coaxial line (1) is led to earth potential at the first connection face (8) via a third low impedance resistance network (13) and, at the second connection face (9), via a fourth low impedance resistance network (14).

4. Directional coupler according to one of the claims 1 to 3,
characterised in that
the coaxial line (1) is bent in a semicircular shape or U-shape.
5. Directional coupler according to claim 4,
characterised in that
the semicircular or U-shaped coaxial line (1) is mechanically and electrically connected to the planar printed circuit board (15) at the first connection face (8) to its inner conductor (2) via a connection conductor (76) and to its outer conductor (3) via conically disposed resistors (R_{74} , R_{131} , ..., R_{13n}) of the first and/or third resistance network (7, 13) and at the second connection face (9) to its inner conductor (2) via a connection conductor (126) and to its outer conductor (3) via conically disposed resistors (R_{124} , R_{141} , ..., R_{14n}) of the second and/or fourth resistance network (12, 14).
6. Directional coupler according to one of the claims 1 to 5,
characterised in that
at least one ferrite ring (4) made of a ferrite material surrounds the coaxial line (1).
7. Directional coupler according to claim 6,
characterised in that
a plurality of aligned ferrite rings (4) encases the coaxial line (1).
8. Directional coupler according to one of the claims 1 to 7,

characterised in that

the resistors (R_{71} , R_{72} , R_{74} , R_{121} , R_{122} , R_{124} , R_{131} , ..., R_{13n} , R_{141} , ..., R_{14n}) of the resistance networks (7, 12, 13, 14) are components soldered onto the planar printed circuit board (15) in SMD technology.